



# FAX COVER PAGE

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Pages: 12

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David S. Warren:

Attached is one of the two FAXes of our draft response that is due in about 6 weeks. Our second FAX will follow this shortly. Any comments or suggestions would be greatly appreciated.

Thank you.

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**INVENTOR'S DRAFT RESPONSE TO USPTO CLAIM REJECTIONS  
ON APPLICATION 09/655792**

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Item	Claim Rejection Statements	Summary of Inventor's Response
1	Claims 1-6,10,12, 15 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.	<b>SUBJECT MATTER AMENDED:</b> Claims 1, 2, 3, 4, 5, 6, 10, 12, 15 and 16 have been amended (another item being FAXed) to particularly point out and distinctly claim the subject matter regarded as the invention and which, of course, has been previously included in the invention specification and drawings.
2	In claims 1 - 3, the phrases "Instant Musician," "Instant Recording Artist," and "Instant Composer" are considered to be narrative and do not provide a structural limitation. Perhaps, the applicant would consider such phrases as "a recording subsystem" or "a composition subsystem," etc.	<b>NAMES AMENDED:</b> Per this suggestion, we amended the sub-system names in the invention to: <i>Instant Musician</i> <u>music playing</u> sub-system, <i>Instant Recording Artist</i> <u>music recording/altering</u> sub-system, and <i>Instant Composer</i> <u>music composing</u> sub-system  However, we wish to maintain the "Instant" designation so we don't have to go through the tedious task of amending the invention name, specification and many drawings. And, we have had no object to this name since we applied in August of the year 2000.
3	In claim 2, "transformations" is interpreted as changing equalization parameters. If the applicant intended the frequency transformations to include transposition (or some other parameter), clarification is required.	<b>CLARIFICATION ADDED:</b> Clarification has been added in claim 2 to explain further the meaning of frequency transformations. Transformations as intended in the application are much more than changing equalization parameters where amplification and/or attenuations just occur in some sound frequencies that exist in the original number. The mathematical frequency transformation process in our invention can actually shift originally created sound frequencies into frequency bands that did not even exist in the original music production.

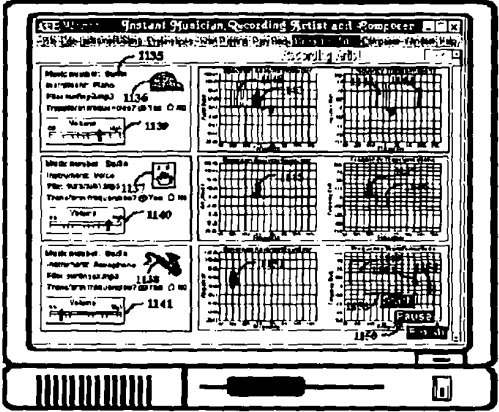
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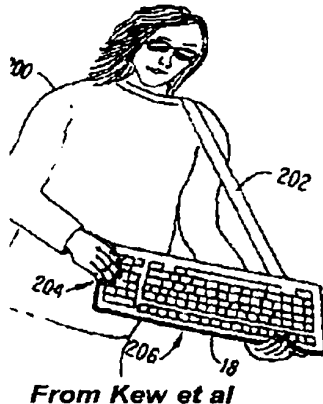
Inventor's Response to Rejections - Page 1 of 11

4	<p>Regarding claims 4 and 16, the examiner would like clarification as to "each possible note tied in the database to recorded single musical notes to the actual sounds of all known musical instruments." This phrase, as interpreted by the examiner, implies that the applicant's database contains all notes for all known instruments. The examiner questions the feasibility of such a database.</p>	<p><b><u>NOTE DATABASE IS NO PROBLEM:</u></b> New musical instruments will continue to be developed over time, of course, requiring an "all known musical instruments" database to continue growing in size. From the standpoint of an ordinary person these days, something like 50 instruments or less would probably constitute the statement of "all known musical instruments." However, we have amended the claims to eliminate this "all known instruments" phrase and replace it by a list of 13 or slightly more instruments. Given then that we more than double this number to say 50 musical instruments and then use 500 unique musical note sounds of each instrument, this makes only 25,000 individual note sounds to be accessible by our system to play the notes of "all known musical instruments."</p> <p>Therefore, using say 128 bits per stored sound per note of an instrument, this makes only 64,000 bits required to store the note sounds of one instrument. And the storage for 50 musical instruments then would be 50 times this or 3.2 Mega bits or 0.4 Mbytes of memory required for the musical sound database. This amount of memory, of course, is small compared to what today's computers can handle.</p>
5	<p>Regarding claim 6, does the applicant mean to use "interpreted" instead of "interrupted"?</p>	<p><b><u>TYP0 CORRECTED:</u></b> Yes, we meant "interpreted" and this has been corrected in the amended claim 6.</p>
6	<p>Regarding claim 10, where the applicant acts as his or her own lexicographer to specifically define a term of a claim contrary to its ordinary meaning, the written description must clearly redefine the claim term and set forth the uncommon definition so as to put one reasonably skilled in the art on notice that the applicant intended to so redefine that claim term. <i>Process Control Corp. V. HydReclaim Corp.</i>, 190 F.3d 1350, 1357, 52 USPQ2d 1029, 1033 (Fed. Cr. 1999).</p>	<p><b><u>NO REDEFINITION INTENDED:</u></b> Claim 6 has been amended to substitute a "background rhythm or accompaniment for "beat."</p>
7	<p>The term "beat" in claim 10 is used by the claim to mean "rhythm or accompaniment", while the accepted meaning is "a regular, rhythmical unit of time." The term is indefinite because the specification does not clearly redefine the term.</p>	<p><b><u>"BEAT" MODIFIED:</u></b> We have amended claim 10 so that <i>beat</i> is replaced by: "<u>rhythm or accompaniment</u>" with a <u>regular systematic beat</u>" in the amended claim 10.</p>

8	<p>Regarding claim 12, it is not clear as to what is meant by "the function of frequency transformations of music recordings." The examiner has interpreted this to mean a display of EQ parameters.</p>  <p><i>From Our Fig. 19</i></p>	<p><b><u>FREQUENCY TRANSFORMATIONS:</u></b> The "function of frequency transformations of music recordings" is much more than what an equalizer performs on music.</p> <p>In claim 12 we state "display means for displaying both the frequency/spectrum analyzer functions and the function of frequency transformations of music recordings"</p> <p>Besides amplifying or attenuating music sounds in selected frequency bands, the frequency transformation function can shift the originally inputted music sounds into frequency bands not present in the original music sounds. Therefore, with frequency shifts to lower frequencies inputted by a user, a singer with a high voice (say, soprano) may be transformed to sound like a singer with a lower frequency voice (say, base or tenor), for example. The routine with algorithms to do this were given in figure 21 (1215 and 1216) and the frequency transformation results may look like that opposite in our Figure 19.</p>
9	<p>Regarding claim 15, the phrase "with or without" does not provide any further limitation. The examiner has interpreted "with or without" to mean a selectable feature, however, the examiner requests that the applicant clarify the phrase "with or without."</p>	<p><b><u>"WITH OR WITHOUT" WITHDRAWN</u></b> The phrase "with or without" is not needed and the amended claim removes this statement.</p>
10	<p>Regarding claim 15, the phrase "such as" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d).</p>	<p><b><u>"SUCH AS" WITHDRAWN:</u></b> The term "such as" has been deleted from the amended claim and replaced by "including."</p>

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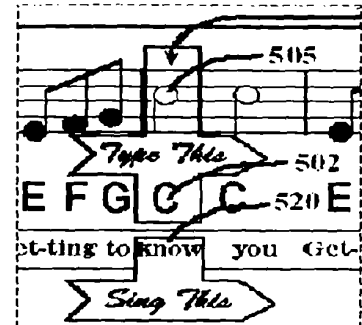
Claim 1 is rejected under 35 U.S.C. 102(a) as being anticipated by Kew et al. (6,063,994). The patent to Kew discloses a computer keyboard used to play the notes of any of several stringed instrument (i.e., the "chosen musical instruments")



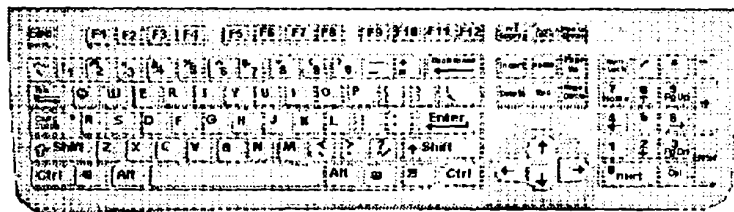
— see fig. 4.

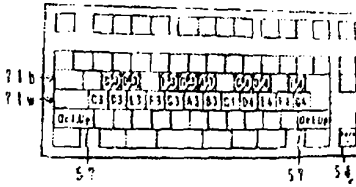
**COMPUTER KEYBOARD USE** The Kew et al patent uses a personal computer keyboard to simulate playing stringed instruments, but the method is quite different. Kew et al maps the keyboard functionality in such a way that the keyboard can be manipulated in much the same way as a real guitar. Further, there is no computer monitor to guide the player to hit the correct key strokes — the keyboard motions made must be similar to the finger motions made to play a real guitar.

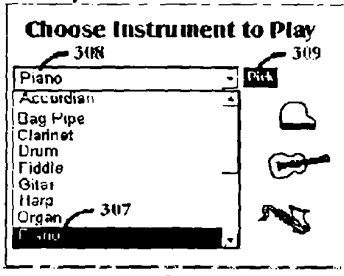
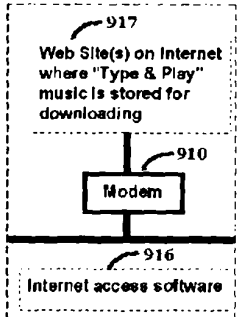
In our invention, the users need not know anything about how to play a real guitar or any other instrument for that matter. After the user picks a music number to play and instrument sounds to hear it by, all he or she needs to know is how to type the keys presented on the display (above). And these keys are nothing more than standard keyboard keys (below) that any average computer user knows how type.



From Our Fig. 6



12	<p>Claims 1 and 6 - 9 are rejected under 35 U.S.C. 102(a) as being anticipated by Hara (6,066,795). Regarding claim 1, the patent to Hara discloses a computer keyboard used to play the notes of any of several instruments (see fig. 2B; i.e., "banks" and "programs" represent different musical sounds or instruments).</p> <p style="text-align: center;"><b>FIG. 1C</b></p>  <p style="text-align: center;"><b>From Hara</b></p>	<p><b>COMPUTER KEYBOARD USE:</b> The Hara patent does use a standard computer keyboard to play the notes of several musical instruments. However, the instruments that can be played are limited to those that are played on a standard "musical instrument keyboard" (piano, organ, etc.) or computer keyboard that functions like one with note soundings like a musical instrument keyboard. With the Hara patent, the standard keyboard functionality is switched to become a musical instrument keyboard (A becomes C, S becomes D, D becomes E, etc.) so that the user can play the standard computer keyboard like a musical instrument keyboard with MIDI output functionality — if the user knows how to play a standard musical instrument keyboard!</p> <p>In our invention, the user need not have any ability to play instruments that use standard musical instrument keyboards or any musical instrument at all. All that is required is to type the standard computer keyboard letters displayed on the screen after having picked a musical number and musical instrument. The instrument chosen could have been a trumpet, for example.</p>
13	<p>Regarding claim 6, the patent to Hara discloses using the "Alt" key to provide modulation (i.e., changing the correlation between notes of the standard keyboard and those interpreted by the system; see col. 8, paragraph 5).</p>	<p><b>USE OF ALT KEY:</b> The Hara invention does use the "Alt" key on a standard computer keyboard to allow the user to provide modulation.</p> <p>In our invention, we do include the functionality of allowing the user to change the correlation between "notes" of the standard computer keyboard and those interpreted by the system. But the changes are much, much greater and completely different than just the "providing modulation." Our claim 6 relates to changing the musical instrument sounds produced by the computer from one type of instrument to another like changing the sounds created from a harmonica to a trumpet. We further permit these changes to be made by manipulating a mouse or other computer pointing device without any particular emphasis on the "Alt" key.</p>

14	<p>Regarding claim 7, see Hara's fig. 2B, the "program" and "bank" are the standard MIDI terms for a different instrument (see col. 7, paragraph 9).</p>  <p><i>From Our Fig. 3</i></p>	<p><b>DIFFERENT INSTRUMENTS:</b> The Hara invention does draw upon some different musical tone sounds to be changed via computer keyboard inputs related to MIDI "program" and "bank" selections.</p> <p>In our claim 7 we do relate also to the changing of musical sounds, but not for a MIDI simulated musical instrument keyboards linked to MIDI "program" and "bank" formats. In our claim 7, we relate to the use of a standard computer to sound the notes of selected musical instrument sounds by user typing standard keyboard keys displayed on the computer's display and having the option of changing the sounds to different musical instruments like changing the sounds of the computer keys being played from the sounds of a piano to the sounds of a clarinet.</p>
15	<p>Regarding claim 8, Hara discloses storing the "musical number" (14,15, and 16; see col. 10, paragraphs 1 and 2; the "floppy disk" is considered a "portable storage device").</p>	<p><b>STORING MUSICAL NUMBERS:</b> In deed Hara does disclose a means for storing music numbers on a portable storage device, and just about every software program of every type whether related to music or not does also.</p> <p>In our claim 8 we are, like Hara and all other systems using computers, claiming that our system can also write to computer writeable portable storage devices. But, the music sounds created by our system that we wish to record are completely different than the sound generation means in the Hara invention (not keyboard simulation, just plain typing). We are, in effect, just storing material typed on a computer keyboard.</p>
16	<p>Regarding claim 9, Hara discloses downloading MIDI data from the Internet (see col. 10, paragraphs 3 and 4).</p>	<p><b>DOWNLOADING MIDI DATA FROM INTERNET:</b> Hara also uses the Internet to download data, as do many applications today, but the data Hara's system downloads is in the MIDI format and is used to provide data supporting use of the computer keyboard to perform like a musical instrument keyboard.</p> <p>In our claim 9, a method of communication with the Internet is included for the purpose of downloading into the computer's memory or storage devices additional musical numbers complete with the correlations between standard keyboard keys (not musical keyboard keys) and the notes of displayed music scores.</p>  <p><i>From Our Fig. 13</i></p>

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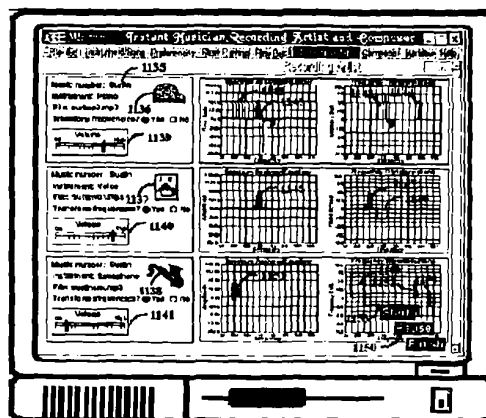
Claim 2 and 12 - 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Wadhams (5,092,216). Regarding claim 2, Wadhams discloses a "recording subsystem" having a means to combine musical numbers (fig. 5) and to make modifications and transformations within selected frequency bands (col. 11, first paragraph). (Note: Wadhams also discloses entering all musical data via a standard computer keyboard - col. 8, paragraph 4.)

**COMBINING MUSICAL NUMBERS** Wadhams does disclose a "recording subsystem" having a means to combine musical numbers and to make modifications and transformations within selected frequency bands.

However, our invention goes much further than just amplifying and/or attenuating music numbers in selected frequency bands and additionally uses a new on screen method for modification of numbers than on screen sliders (see figure 19). In our invention, we can combine individual music numbers in such a way that the each individual music number combined may be modified not only in

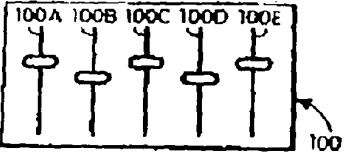
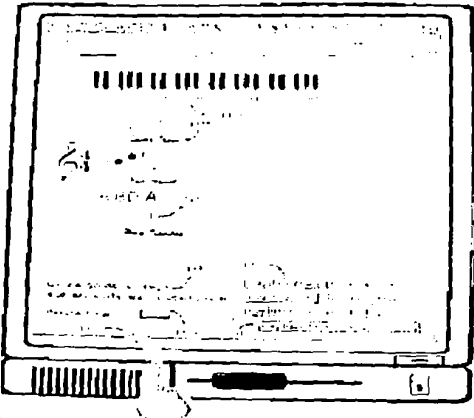
amplification/attenuation in given frequency bands, but ours can additionally transform parts of the music numbers into frequency bands that never even existed in the original music number. This is quite different than just amplifying and/or attenuating the music numbers in selected bands like equalizers do. Our frequency transformation routine (1215, figure 21) that responds to our user frequency input and frequency shift routine (1216, fig. 21) can create frequencies in the original music number being modified that didn't even exist so an soprano singer can be made to sound like a alto singe on a previously recorded music number, for example. And the same applies to music numbers of combined musical instrument sounds combined.

Wadhams does also discloses entering all musical data via a standard computer keyboard. However, the data entered is in MIDI format which we do not use. Further, our invention includes multiple methods of entering music data including mouse or other pointing devices and sound pickup means.




From Our Fig. 19



18	<p>Regarding claims 12 - 14, Wadhams shows the use of a display (100, fig. 4; albeit mechanical sliders which indicate - i.e., display - and attenuation levels).</p>  <p><i>From Wadhams Fig.4</i></p>	<p><b>DISPLAY USE WITH SLIDERS:</b> Wadhams does show the use of a display with the computer screen equivalent of mechanical sliders for adjusting levels of sound in certain frequency bands.</p> <p>Our invention does not use a simple computer display equivalent of mechanical sliders like Wadhams. Rather our invention uses a combined spectrum analyzer/equalizer touch screen mechanism plus an on screen frequency transformation mechanism which is not only different but has a much greater functionality because of the frequency band transformation mechanism (Figures 17, 19 and 20). An example was shown in item 17.</p>
19	<p>Wadhams also discloses storage means (146, fig. 4) and the use of a microphone (col. 11, line 3)</p>	<p><b>STORAGE MEANS:</b> Wadhams use of a storage means for music data is something that just about every computer based product has had for some time, and our use of storage media is much more general (1212, Figure 21). Our data format for music data storage further does not rely on MIDI format and is open to many more formats.</p> <p><b>MICROPHONE USE:</b> Also, our use of a microphone has not only the traditional input use for singing, but it additional serves to capture sounds of any nature that our systems converts directly to music scores that can then be presented back on the screen in such a way as to permit the user to play any chosen instrument sounds by simply typing the keystrokes displayed.</p> 
20	<p>Wadhams shows the use of combining musical "numbers" in col. 18, last paragraph.</p>	<p><b>COMBINING MUSICAL NUMBERS:</b> Our invention also combines musical numbers, if desired, but our combining process includes the much more profound processing and combining each of the music numbers using the unique amplitude/frequency transformed music numbers that produce something quite different (see item 17 response).</p>

21	<p>Claim 3 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Arnold et al. (5,908,997). Arnold discloses the use of "composition subsystem" which provides users with a means to compose or create new music having music scores (col 2, lines 28 and 29), words (fig. 16), and recorded music sounds (col. 2, paragraph 7).</p>	<p><b>COMPOSITION SUBSYSTEM</b></p> <p>Our review of the patent of Arnold et al found no reference to the ability to compose new music or to new compose music scores.</p> <p><b>ELECTRONIC MUSIC INSTRUMENT NEEDED:</b></p> <p>Further, the Arnold et al invention must interface with some electronic music instrument whereas our invention does not. Our invention only requires use of a computer with no more features or add ons than comes on the average personal computer these days (see figure).</p> <p><b>Our Fig. 28</b></p> <p><b>MULTIPLE MEANS TO COMPOSE ON COMPUTER</b></p> <p>Our invention additionally allows any user to compose original music scores by a number of different means including humming, whistling, singing, score modification as well as pointing and clicking of the mouse or other pointing device. There is no reference to any of these composition techniques in the Arnold et al invention.</p>
22	<p>Arnold also discloses the use of a mouse (col. 5, lines 55 and 56) and a microphone (84, fig. 2) to enter musical data. (Note: Arnold also shows the use of a QWERTY keyboard, albeit a touch-screen model - see fig. 23).</p>	<p><b>MOUSE USE:</b> The Arnold et al patent use of a mouse mentioned in the referenced lines is an additional user input — besides touch screens favored — for the purpose of navigating "various control screens." This, of course, is the normal use of a mouse on just about every system using a computer developed in the past decade.</p> <p>The unique mouse use in our invention related to claim 3 is the use of it to enter notes on a music score and have the noted sounded over the computer's speakers using the sound of the selected music instrument for that particular note.</p>

22	<p>22 Continued</p>  <p><i>Arnold et al Fig. 1</i></p>	<p><b><u>MICROPHONE USE:</u></b> The Arnold et al use of a microphone 84 (col. 6, lines 14 and 16) is for inputting sounds to the multimedia audio mixing subsystem.</p> <p>However, the Arnold et al invention does not include the use of microphone inputs to directly deposit music notes on to music scores being composed by the computer user by mumming, singing, whistling, etc.</p> <p><b><u>QWERTY KEYBOARD:</u></b> A touch screen equivalent of QWERTY keyboard is shown in Figure 23 of the Arnold et al invention, but the use of the keyboard is not for any purposes explained in our invention. Their use of the keyboard is described as for "allowing user input of alphanumeric information in conjunction with renaming function." This is required in their invention because the system fits into a piano assembly (opposite) where use of a standard keyboard would be more than just awkward. The use of their touch screen keyboard display is also mentioned in column 25, line 33, but the described use there is also just for file renaming purposes.</p>
23	<p>Regarding claim 16, Arnold discloses the use of multiple instrument sounds (208, 210, fig. 7) in which the sounds of each instrument will inherently be stored within a storage means, a display (20) for displaying a score, the use of a mouse (col. 5, line 55), sound generation means (136), and a microphone (84, fig. 3).</p>	<p><b><u>MULTIPLE INSTRUMENT SOUNDS:</u></b> The Arnold et al invention is able to create multiple instrument sounds when the user is playing, but this playing must be accomplished on a musical instrument keyboard like a piano keyboard having typically 88 linearly aligned keys.</p> <p>In our invention, the user creates the music sounds individually at first for each instrument sound selected — using a standard computer keyboard — and then combines them into a very unique mix that may include user selected equalizer functionality in addition to frequency transformations.</p> <p><b><u>SOUNDS STORED WITHIN STORAGE MEANS</u></b> Storage of data, sound data, or other types of data within a storage means is a extremely common event that has been going on now for many years for all types of computer applications. Perhaps this could be unique for a system intended to be mounted in a piano type structure which, of course, does not apply to our invention.</p>

23	23 - Continued	<p><b><u>MULTIPLE INSTRUMENT SOUND STORAGE:</u></b> Our invention does permit the storage of multiple instrument sounds, but these sounds have to be created by the user typing letters displayed on a standard computer keyboard which is quite different than the Arnold et al invention. Also, our invention allows the stored multiple instrument sounds to have both selected equalizer and frequency transformations operations performed beforehand.</p> <p><b><u>DISPLAY OF SCORE:</u></b> There are no displays of music scores in any of the figures associated with the Arnold et al invention. The closest but not similar capability is the display of karaoke lyrics (col. 22, line 16) "if the system program detects karaoke lyrics within a selected MIDI file."</p> <p>In our system, a music score is displayed along with lyrics and the standard computer keyboard key the user must type to play the music number selected.</p> <p><b><u>MOUSE AND A MICROPHONE USE:</u></b> Our use of these two items, and how they are different from the use by Arnold et al is was described in item 22.</p>
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